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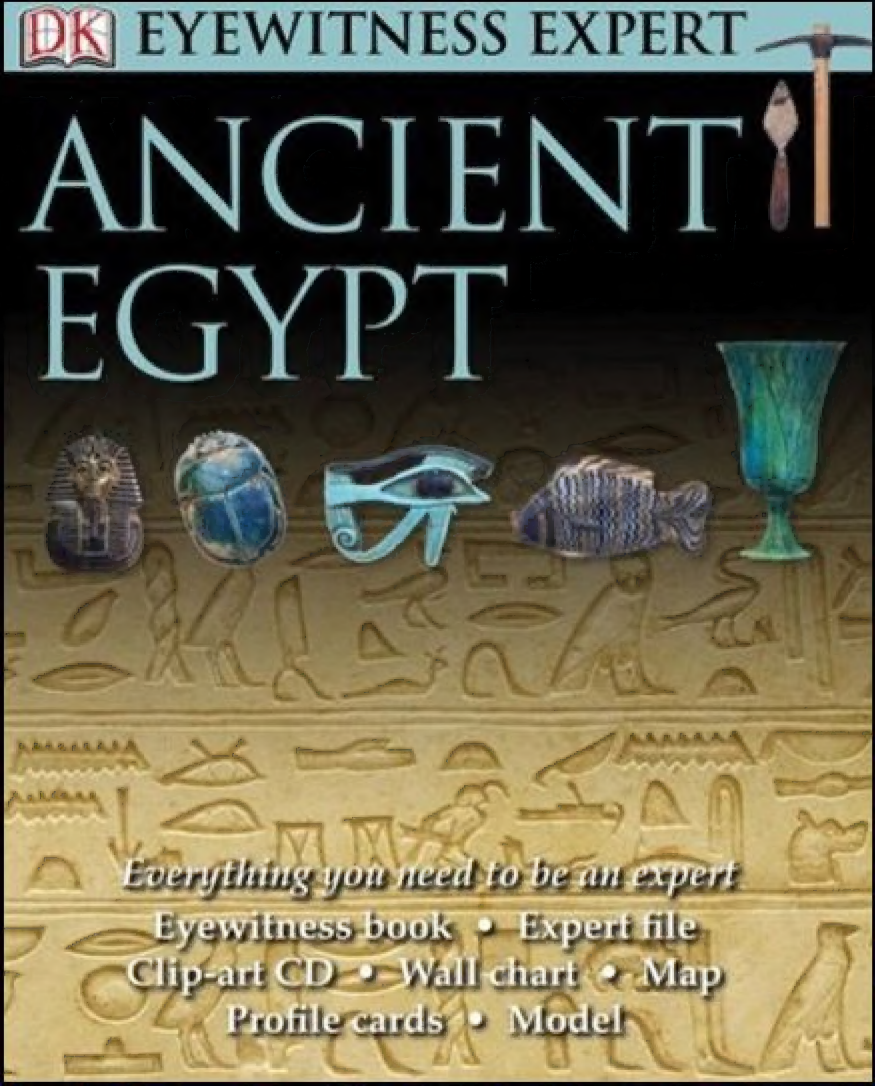

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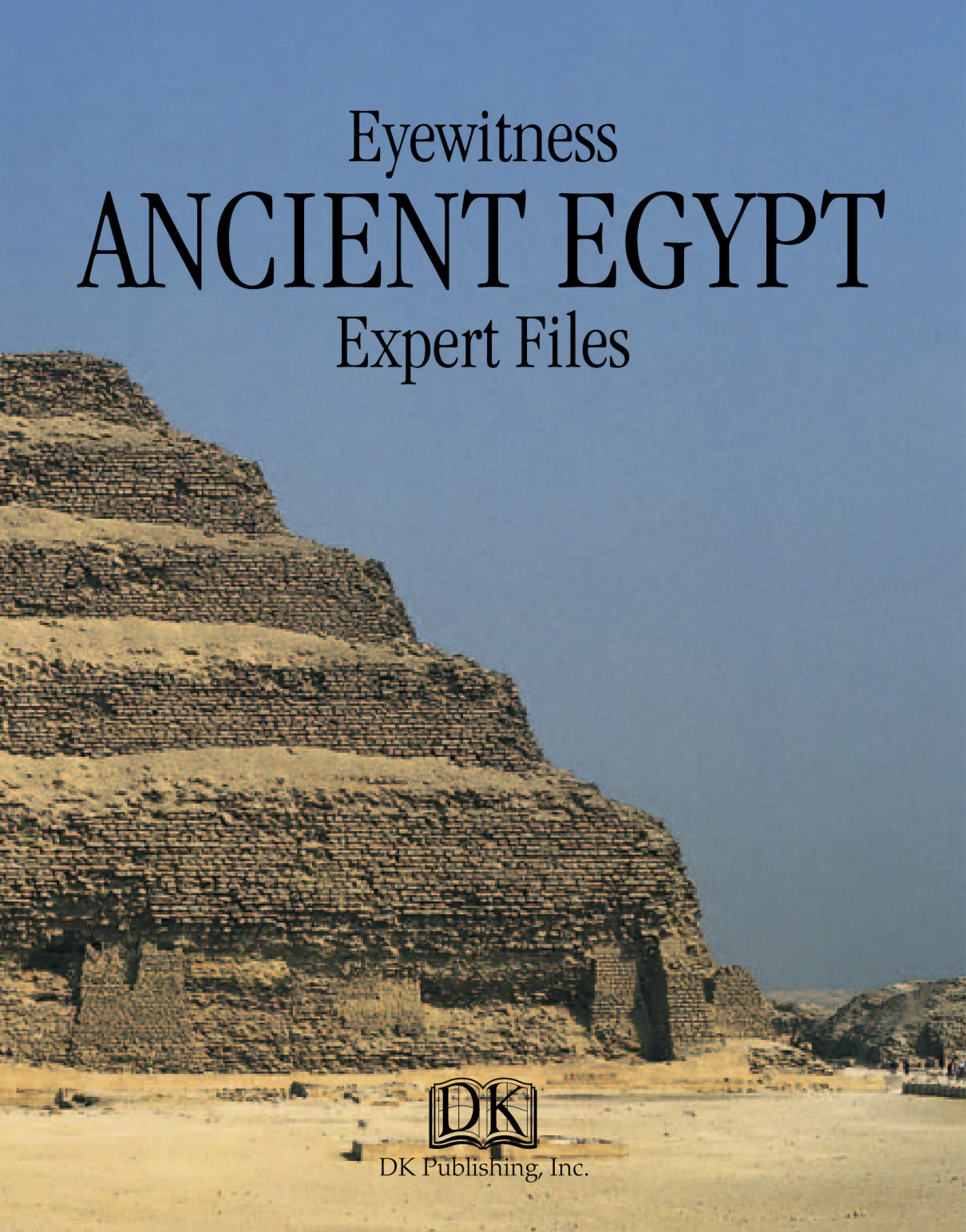

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MEET THE EXPERTS

Egyptologists have a passion for uncovering the past, not only to discover artifacts, treasures, and monuments, but also to reveal the human stories behind their finds. They strive to understand an ancient civilization.

EXPERT
Archeologist
PROFILE

THE PYRAMID BUILDERS
Experts have worked out that the Egyptians built the pyramids and temples at Giza over a period of 85 years during the Old Kingdom. These monuments have revealed much about the pharaohs and the gods they honor, but little about those ordinary Egyptians who toiled in the hot sun to construct them—until now.

NAME: **MARK LEHNER**

WORKS: **CAIRO, EGYPT**

HOME COUNTRY: **US**

Mark Lehner has been fascinated with ancient Egypt since he first came to Cairo as a student in 1973. As an archeologist—someone who studies ancient cultures by excavating the sites where people lived—he has been involved in many digs. As director of AERA (Ancient Egypt Research Associates), he organizes an international team of archeologists and specialists at the site of the ancient pyramid settlement on the Giza Plateau. In the 1980s, Mark created the first accurate maps of the Sphinx at Giza. He then teamed up with Dr. Zahi Hawass, head of Egypt's Supreme Council of Antiquities, to look for the lost city where the workers lived. He wanted to find out about the lives of the people who built the pyramids.

ON THE SITE
With the tool of his trade, a trowel, in hand, Mark takes stock inside the walls of an ancient dwelling uncovered at the site of the Giza settlement.

Uncovering the Lost City

MARK AND HIS TEAM FOUND AN ANCIENT SETTLEMENT AT THE FOOT OF THE GIZA PLATEAU, THE ROYAL BURIAL GROUND OF THE OLD KINGDOM. LITTLE BY LITTLE, THEY UNCOVERED EVIDENCE OF THE LIVES OF THE MASSIVE WORKFORCE NEEDED TO CONSTRUCT SUCH IMPRESSIVE MONUMENTS.

OLD MEETS NEW
The city of Cairo sprawls right up to the pyramids of Giza in northeast Egypt, Africa.

History in stone

I started the Giza Plateau Mapping Project in 1988, working on the Sphinx originally. Carved from natural bedrock, the Sphinx's body is made up of a series of layers of rock that are alternately soft, hard, soft, hard... The bedrock at the bottom is really brittle. The Sphinx is not as it was originally built. The limestone it is made from has crumbled. The monument has been repaired by workmen many times, from soon after the pyramids were built thousands of years ago, right up to the present day—just as a house is patched up and repaired over the years. By mapping the bedrock, we can identify the different layers and work out what's original and what was added later.

View of the pyramids from Cairo

View from inside the Sphinx Temple

Investigating the past

Our interest turned to a temple to the right of the Sphinx. Each of the three great pyramids had a long causeway with temples on each side at the end. The Sphinx and Sphinx Temple are on one side of Khafre's causeway, and the Valley Temple is on the other. Like the Sphinx, both temples had been buried under sand over the years. Looking at the geology of the site, we noticed that the same layers of rock were used for building the Sphinx and its temple, so these seemed to have been built at the same time, whereas the Valley Temple is older.

Ancient building site

By studying the geology of the site, we have also identified the quarries from where the stone was

MEASURING AT THE SPHINX

A head of a king on the body of a lion, the Sphinx stands guard at the end of the causeway to Khafre's pyramid (the second largest of the three great pyramids at Giza). AERA researchers used a process called photogrammetry, which combined stereoscopic photography with survey measurements to create a 3-D digital model of the Sphinx.

taken for building the pyramids at Giza. The limestone blocks for the main structures were taken from quarries right there on the plateau. The more attractive stone for the outer casing came from other quarries at Turah, across the Nile River. Huge blocks of granite came from Aswan 500 miles (800 km) to the south and were brought up the Nile by boat. Hundreds and hundreds of tons of stone were used. It took a huge workforce to transport these materials and build these structures. The mystery to me was where had all these people lived? They had to be fed, so there had to be cooking facilities. They had to have water brought in. They had to sleep somewhere.

"Egyptologists estimate that around 20,000 people built the pyramids. Where did they all live?"

Looking for a lost city

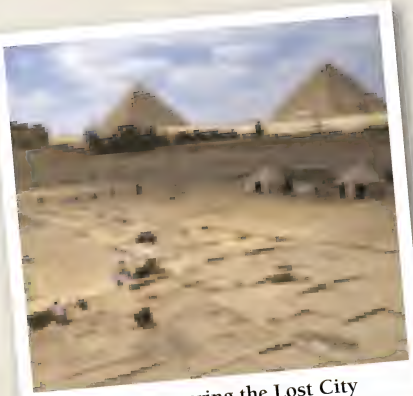
Where do you find a lost city? The landscape gave me some clues, indicating where we should look. Running through the plateau is a valley. The area south of the mouth of the valley looked like a good place for a town. We had a couple of proposed sites. One revealed debris but wasn't right. So we widened the area and then we found it! Just south of the pyramids, at the base of a sandy slope, we found some walls and pottery. We excavated a 16-ft (5-m) square area and began to uncover the kind of evidence we were after to support our theory.

Settlement archaeology

Our project is different from traditional digs that discover tombs, temples, and monuments. We are looking for the footprint for a civilization, a layout of houses, a hamlet or town. We are not looking for nice objects to put on show but for objects that can give us clues to the way the ordinary Egyptians, the pyramid builders, lived. Things like animal bones to find out what animals were there and what the builders were eating. From studying building materials, tools, and techniques, Egyptologists estimate that around 20,000 people built the pyramids. So where were their houses, and how were they organized to achieve such building feats?

Digging process

We needed to identify the stratigraphy—the order in which different parts of the site were created by nature and built on. This is done by studying the layers of building materials and occupation. We uncovered the city layer by layer in reverse order, from top to bottom.



Gradually uncovering the Lost City

THE DIG GETS DEEPER
Mark's team uncovered an area the size of eight football fields that until recently had been covered in deep layers of sand deposited during the Old Kingdom.

Concrete evidence

Our work involved sifting through layers and layers of sand. It was hot and hard work—we could really identify with those ancient pyramid builders who toiled under the sun 4,500 years ago. It's not just the artifacts themselves that we prize. It's the information they reveal about the places where they are uncovered that is so fascinating. Finding a bakery with its huge vats and bread pots for producing huge loaves was an exciting moment because it showed that bread was made on a massive scale to feed many mouths. Now we just had to find the workers' homes...

IN THE BAKERIES
Mark Lehner records findings at one of the bakeries revealed at the site. The first two bakeries were uncovered in 1991, filled with black ash. In each one, large vats for mixing and kneading dough were found embedded in the floor.

Clearing years of debris

Generally, an archeological dig takes up two to three months a season. For every month an archeologist spends in the field, there are three months of research looking at the finds. But in 1999 we embarked on three years of intensive work, an archeological marathon. We mapped out a ground plan and excavated as much as possible as quickly as we could because the area was endangered by land use. Modern Cairo extends to the foot of the Giza Plateau. For three years we cleared the modern debris and waste which had covered the site of the lost city. Edges of the area have already been built on, and one part can't be excavated because it lies under a soccer field.

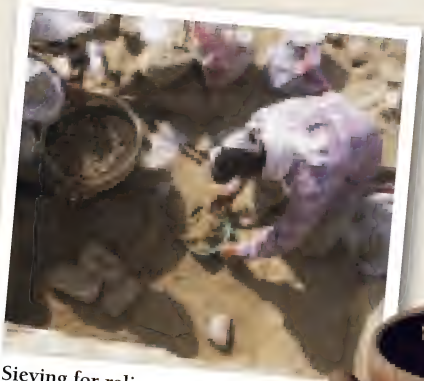
Town plans

As we cleared the area, we could map the outlines of the city's walls to get the overall plan of the city and excavate selected parts. Through research and mapping, we know that the city collapsed and was gradually covered over.

That might have been due to a climate shift—a reduction in rainfall, a drying to current levels of aridity, and wind scouring the site with sand as it blew in off the western desert—causing the site to erode down to waist or ankle level.

Digging the dirt

Although we have modern techniques to help with dating and measuring structures, much of our work remains



Sieving for relics

A vat, perhaps for mixing bread dough

VATS AND POTS
Fragments of huge, bell-shaped bread vats were found alongside beer jars and other pots. Bread and beer were part of the pyramid workers's diet.

very traditional. Our main tools are still a mason's trowel and a brush. It's painstaking work, sifting layers of soil, but essential. It's important we don't get the layers of soil mixed up. We scrape away and look at changes in the layers. If we see red under a dark layer, we stop there. We have separate baskets to collect material found, numbered for each layer. We sift the soil for information—tiny animal, fish, and bird bones, fragments of mud stoppers impressed with hieroglyphs, fragments of chipped flint—digging meticulously and labeling finds. As we went on over the years, the site and the team grew bigger and bigger.

Different layers of earth tell a story

Team of specialists

AERA is a truly international team with members from Scandinavia, Britain, Japan, Germany, France, Holland, Portugal, Poland, and, of course, many Egyptians and Americans. We have a large team of archeologists and specialists from many different disciplines with different expertise. Archeobotanists look at things like seeds and plant remains. Specialists in zooarcheology look at animal remains, so we know what kind of fish was eaten, and where bones come from to see what cattle was kept in the area. Geologists look at the soil itself. They can tell us about the environment at the time and the geological history of the area. Other experts look at chipped stone to see the tools the pyramid builders used and how they were made and used. Then there is a whole team to excavate skeletons from an ancient burial ground here. This was cut into the city long after our Fourth Dynasty settlement was abandoned. Osteologists specialize in excavating and analyzing human skeletons. They record evidence of how people lived and possibly how they might have died, and date the burials on the basis of the pottery found in the grave. Almost all of the skeletons we have excavated on our site date to the Late Period, after 664 BCE.

Digs for the dig

All in all we have around 30 archeologists on site and 20–30 students helping as they learn. At some sites, especially in more remote areas, archeologists might have to stay in tents and makeshift camps. But the Giza Plateau is so close to the city of Cairo that we can rent a big villa near the site. Many of us stay in the villa or in apartments or in a hotel.

UNCOVERING THE BARRACKS
Walls for galleries like army barracks, where many people could sleep in a small area, were found in the middle of the site. This is where the pyramid builders probably lived.

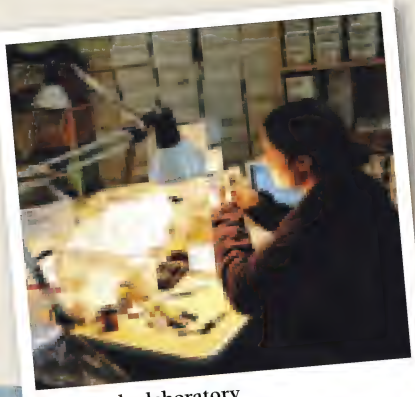
"What we have found here must exist in other sites. There is still a lot more for me and other archeologists to do in Egypt."

Logging the lot

We have found thousands and thousands of fragments of bones and charcoal, and over a million pieces of pottery. We collect, label, and log everything. We have a huge store of ceramics. One of our specialists, ceramicist Anna Wodzinska, identifies the pottery pieces and enters them into a database.

Searching for seals

Ancient Egyptians sealed everything—from doors and storage boxes to food in pots—to keep them shut and stop others from opening them. They were mud seals with hieroglyphs stamped on them. By looking carefully at the impressions they left, epigraphers (experts who study ancient writing) can translate what was on the original seals and work out what they were used for. It's like fitting pieces of a puzzle.



Back in the laboratory

CATALOGING
Every single fragment of charcoal, pottery, sealing, and bone is sealed in bags and labeled. Cataloging begins on site, but there are still store rooms full of samples to be identified and analyzed in the laboratory.

Dates confirmed

Seals and ceramics are among our largest finds at the site and they are essential for telling us that this was indeed the Lost City of the pyramid builders. They date from the middle to the late 4th Dynasty when the Egyptians were building the second and third Giza pyramids for pharaohs Khafre (r. 2558–2532 BCE) and Menkaure (r. 2532–2503 BCE).

Making maps

As director, I'm not too happy just telling others what to do. I like to get involved. My main area of interest is mapping and survey. It is important to make a comprehensive record of the site, so we can look at the whole picture and ask what story it is telling. We plot all the finds, all the data, as geographical information. Having GIS, our Geographical Information System, has moved archeology on, with its layers of precise information about the site. For instance, we can easily see details such as where all the prime beef cattle bones were found and note the distribution. It turns out that not everyone on the site was eating beef—the workers were eating sheep, goat, and catfish.

The city unfolds

Through analysing all the information we have built up a picture of the city as a carefully planned site. The ancient Wall of the Crow runs between the pyramids and the Lost City. Beyond the wall, there are four blocks of galleries for the workers in the

ROOMS REVEALED
When the Eastern Town House was excavated, it revealed a domestic structure more like a private house than the galleries used by the builders, with a raised platform for sleeping on.

center, and facilities such as bakeries with grinding stones and a central storage building. There are larger town houses to the west, possibly for rich overseers, a central administrative enclosure, and smaller houses to the east. There were huge silos (for storing grain) in the center of the administrative enclosure, with restricted access. We found little tokens made of mud that might have been used as counters, some shaped like little loaves. This building may extend for another 300 ft (100 m) beneath a modern soccer field next to our site.

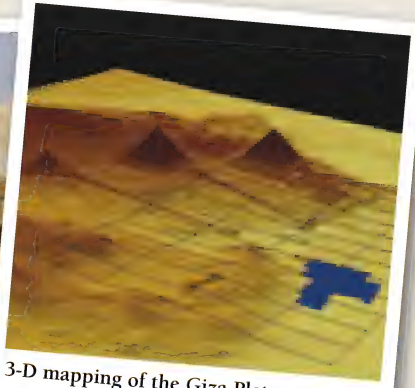
A screen near you

Laser scanning has also helped the process along. We conduct a survey of a site using infrared and laser scanning systems to find the measurements. It used to take months to map a monument. Now you run a laser beam over the Sphinx or the queens' tombs, the laser records the points, and a computer program produces a 3-D image. You can do the same with a house—scan the rooms, then plug the system into a computer screen and call up the information. Aside from building a computer model of the settlement, we also physically built a model of the Eastern Town House on a platform of sand and mud above the original while preserving the remains of the ancient building beneath.

From excavation to education

The teaching side of AERA is very important. We run a Field School working with the Egyptian Supreme Council of Antiquities, the governmental authority for all archeological sites. I am also a Research Associate at the Oriental Institute of the University of Chicago and the Harvard Semitic Museum, in the US.

Rebuilding the Town House



3-D mapping of the Giza Plateau

Future projects

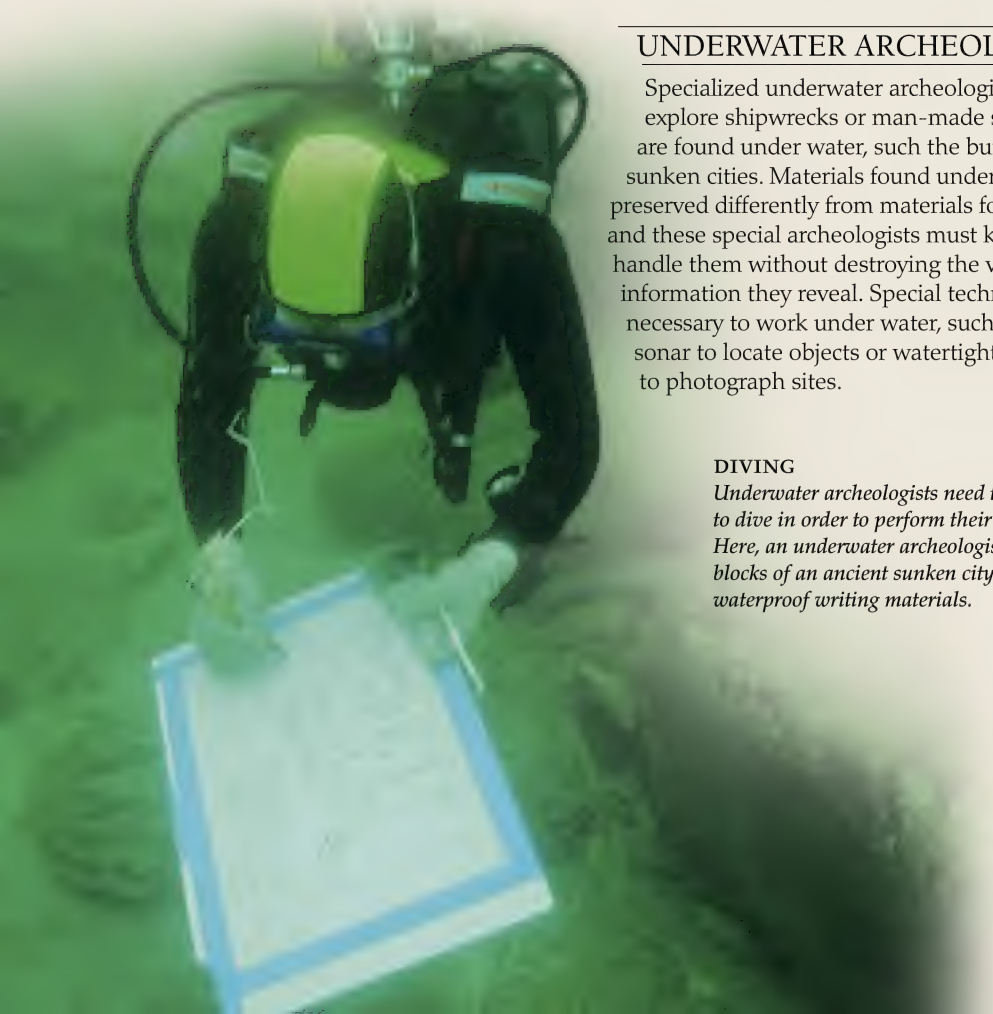
I could spend another career excavating parts we haven't yet uncovered and conserving them for future generations. What we have found here for the 4th-Dynasty pyramid builders must exist in other sites. There is still a lot more for me and other archeologists to do in Egypt.

Types of Expert

Back in the 19th Century, just about anyone could become an Egyptologist, without any training in archeology. One of the most famous 19th-century Egyptologists, Giovanni Belzoni, began his career as a circus strongman! These days, things are different, and many types of expert are necessary for archeological investigation. Specialists work in fields that early Egyptologists never dreamed of—diving under water to investigate sunken cities, or using X-rays to look inside mummies.

UNDERWATER ARCHEOLOGIST

Specialized underwater archeologists often explore shipwrecks or man-made structures that are found under water, such the buildings of sunken cities. Materials found under water are preserved differently from materials found on land, and these special archeologists must know how to handle them without destroying the valuable information they reveal. Special techniques are necessary to work under water, such as using sonar to locate objects or watertight cameras to photograph sites.



DIVING
Underwater archeologists need to know how to dive in order to perform their work. Here, an underwater archeologist charts the blocks of an ancient sunken city using special waterproof writing materials.

EPIGRAPHER

An epigrapher specializes in texts, inscriptions, and wall decorations. This highly detailed job requires a knowledge of the ancient techniques used to carve or paint texts and images, as well as an ability to decipher ancient scripts. Most Egyptologists specialize in the Egyptian language only. The work of deciphering ancient inscriptions is often painstaking and is sometimes done in difficult conditions.

WHAT DOES IT SAY?
An epigrapher carefully examines an inscription carved on the wall inside an ancient tomb.

FIELD ARCHEOLOGIST

The field archeologist probably fits mosts people's idea of what an archeologist is, since he or she spends much time carefully digging and sifting in seach of ancient artifacts. Field archeologists need training in excavation techniques as well as a good knowledge of the material culture of the period and region they are exploring. Years can go by without a significant find, so field archeology also requires a great deal of patience. When an artifact does turn up, good analytical skills are vital in determining its significance.

MAKING NOTES
A field archeologist has to take very precise notes about where an artifact was found, and what the site was like before the excavation began. The site is also mapped many times as the dig progresses.

BIOLOGICAL ANTHROPOLOGIST

Anthropology is the study of humankind, and biological anthropologists (also called physical anthropologists) examine the way people physically adapt to their environments over time. A special branch of biological anthropology, called paleopathology, studies the effects of disease and injury on skeletons. This sort of investigation has been important in deciding the way in which mummified people died. Modern medical techniques, such as computed tomography (CT) scanning, are often used in these investigations. For example, a recent CT scan of the pharaoh Tutankhamun's mummy has led a committee of experts to believe that he probably died of gangrene, which set in after he broke his leg.

SCANNING A MUMMY
Computed tomography (CT) scanning uses cross-sectional X-rays to build up a detailed picture. This technique allows experts to "see" inside mummies without unwrapping them.

OSTEOARCHEOLOGIST
A thorough knowledge of anatomy, along with modern scientific techniques, allows osteoarcheologists to decide the type and age of bones found during digs.

OSTEOARCHEOLOGIST

As a branch of biological anthropology, the field of osteoarcheology concerns the study of bones found during archeological digs. Osteoarcheologists need to have a detailed knowledge of both human and animal anatomy to be able to tell the difference between human and animal bones, which are often found together during digs. They use various techniques, including radiocarbon dating, to decide the age of bones and estimate age at death. Analysis of the composition of human bones can tell a great deal about people's lives, such what their diets were like and what diseases they had.

CURATOR

A curator acquires and looks after a museum's collection of objects, and is responsible for cataloging and displaying them. Curators need highly specialized knowledge of the objects they look after, and are experts in the history and culture of the area from which the objects come. They also need to know about the best ways to preserve their collections for the future. Curators work together with people in similar jobs at other museums to arrange loans of objects for major public exhibitions. Arranging these exhibitions often takes years.

EGYPTIAN MUMMIES AT THE BRITISH MUSEUM
The British Museum in London, England, has a huge collection of Egyptian mummies. Curators at the museum make sure they are preserved for future generations to see and study.

CONSERVATOR

Archeological conservators clean and preserve artifacts, and sometimes reconstruct them. Their work may begin at the site of the dig, where a conservator may advise a field archeologist on the best way of removing an object from the ground. Further conservation work may continue in a laboratory. Conservators need good scientific skills, as well as knowledge of their artifacts.

CONSERVATOR
When artifacts are found, conservators use special treatments to keep them from further deterioration. Different materials, such as stone or wood, require different approaches to conserve them.

Hall of Fame

EGYPT HAS FASCINATED explorers and adventurers throughout history. Thousands of people have added to our knowledge of ancient Egypt over the years, but some have made outstanding contributions of major significance.

GIOVANNI BATTISTA BELZONI

1778–1823

JOB: Engineer/explorer/showman

COUNTRY: Italy

Giovanni Belzoni was born in Padua, Italy, where he studied hydraulics. Standing 6 ft 7 in tall (2 m), he found work as a strongman in England, where he attracted the attention of the antiquarian Henry Salt. In Salt's employment he went to Egypt, where he collected many artifacts, such as the bust of Ramses II, and explored many temples and tombs. He died in Africa trying to reach Timbuktu.

The Great Belzoni

LUDWIG BORCHARDT

1865–1935

JOB: Egyptologist

COUNTRY: Germany

Ludwig Borchardt was born in Berlin and studied architecture and Egyptology before becoming an expert in Egyptian architecture. He worked with the Frenchman Gaston Maspero to produce a catalog for the Egyptian Museum, and founded the German Archeological Institute. He is best known for his exploration at Amarna, where he found a bust of Nefertiti, and for excavations at Heliopolis and Abu Gorab.

JAMES HENRY BREASTED

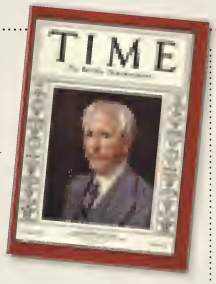
1865–1935

JOB: Egyptologist

COUNTRY: US

James Henry Breasted was born in Illinois and studied history and ancient languages before receiving a Ph.D. in Egyptology from the University of Berlin.

He did extensive work on hieroglyphic inscriptions and published a series of books containing translations of Egypt's most important historical texts. As a professor at the University of Chicago, he led one of the first major archeological surveys in Egypt, with funding from the millionaire John D. Rockefeller. His work in Egypt captured the imagination of the American public.



Breasted on the cover of *Time* magazine, 1931

SIR ERNEST ALFRED THOMPSON WALLIS BUDGE

1857–1934

JOB: Egyptologist

COUNTRY: England

Sir E. A. Wallis Budge was born in Cornwall to an unmarried mother, and came to London to live with relatives. He was an apprentice clerk, but became fascinated by Assyrian and Egyptian languages. He spent much time at the British Museum, where he ended up working after he studied Semitic languages at Cambridge University. He traveled to Egypt, where he obtained many artifacts for the British Museum's collections.

HOWARD CARTER

1874–1939

JOB: Archeologist and artist

COUNTRY: England

Born in London, Howard Carter became interested in Egyptian inscriptions and paintings at an early age. Later, he became a pupil of the famous Egyptologist William Flinders Petrie. In 1907 he began managing the excavations of Lord Carnarvon, and it was while

Carter examines Tutankhamun's coffin

employed by him that Carter discovered the tomb of Tutankhamun in the Valley of the Kings in 1922. This find was significant because the tomb had been hidden since antiquity and its treasures were largely still intact.

GERTRUDE CATON-THOMPSON

1888–1985

JOB: Archeologist

COUNTRY: England

Gertrude Caton-Thompson was an archeologist in a time when few women had careers. She studied at the British School of Archeology in Egypt. Later, she and Elinor Wight Gardner undertook the first archeological survey of the northern Faiyum. Caton-Thompson was field director for the Royal Anthropological Institute.

JAROSLAV CERNY

1898–1970

JOB: Egyptologist

COUNTRY: Czechoslovakia

The Czech Egyptologist Jaroslav Cerny spent most of his career working on texts written by ancient Egyptian craftsmen in Deir el-Medina, near ancient Thebes (modern Luxor). These craftsmen built the tombs in the Valley of the Kings during the 18th to 20th Dynasties. Cerny also wrote a great many books on ancient Egyptian language and culture.

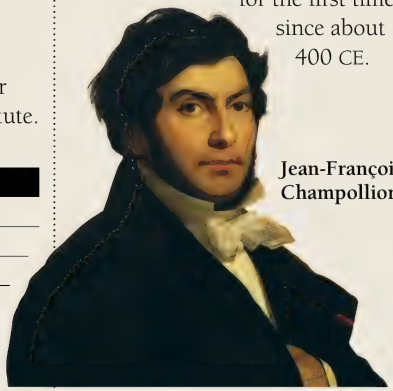
JEAN-FRANÇOIS CHAMPOLLION

1790–1832

JOB: Egyptologist

COUNTRY: France

Jean-François Champollion was a scholar of the classics and a philologist, who showed an aptitude for languages from an early age and studied 12 languages by the time he was 16 years old. He is most famous for deciphering the texts on the Rosetta Stone, which was the key to understanding Egyptian hieroglyphs. The task took him two years, during which he was racing against Thomas Young and others to be the first to complete the translation. Hieroglyphs could be read again for the first time since about 400 CE.



Jean-François Champollion

NORMAN & NINA DE GARIS DAVIES

(1865–1941) (1881–1965)

JOB: Artists and Egyptologists

COUNTRY: England

Nina met her husband Norman de Garis Davies in Egypt. They both had artistic training, and Nina assisted Norman by doing paintings of the interiors of the tombs he was surveying. Her paintings were collector's items almost from the start, and she had exhibitions in London, Brussels, and Oxford. Norman initially worked as a copyist and draftsman for George Reisner and James Breasted in Egypt, eventually taking up a position in Egypt with the Metropolitan Museum of Art. Norman and Nina Davies left Egypt in 1939 with the outbreak of World War II.

LABIB HABACHI

1906–1984

JOB: Egyptologist

COUNTRY: Egypt

Labib Habachi was very influential in the field of Egyptology and worked for over 30 years in the Antiquities Department of the Egyptian government, mostly on site at digs around his native country. His major discovery was the Sanctuary of Heqaib on the island of Elephantine in 1946, but his work on this was only published much later, in the 1970s. He eventually stopped working for the government and took a position with the Oriental Institute of the University of Chicago as an archeological consultant in Nubia. Only later in his career did Habachi receive the credit he deserved for his work.

ZAHI HAWASS

1947–PRESENT

JOB: Egyptologist

COUNTRY: Egypt

Zahi Hawass is an Egyptian archeologist and one of the world's most famous Egyptologists. He was the Director of the Giza Plateau and has worked on archeological sites throughout Egypt.He is currently Secretary General of the Supreme Council of Antiquities in Egypt, and is leading a campaign for the return of important Egyptian artifacts, such as the Rosetta Stone, to Egypt.
His most recent work has involved the excavation of the workmen's cemetery at Giza.

Zahi Hawass scans a mummy

FRANÇOIS MARIETTE

1821–1881

JOB: Egyptologist

COUNTRY: France

François Mariette began his career as a teacher, but while arranging the papers of his late cousin, a friend of Champollion, Mariette became interested in Egypt. He taught himself to read hieroglyphs and Coptic, eventurally securing an appointment at the Louvre Museum in Paris. On his first trip to Egypt he discovered a tomb complex at Saqqara. He took up residence in Egypt and went on to make further important finds.

KAZIMIERZ MICHAŁOWSKI

1901–1981

JOB: Egyptologist

COUNTRY: Poland

Kazimierz Michałowski was an archeologist who worked at many different sites in Egypt and Nubia. He organized French-Polish excavations at Edfu in the 1930s, and directed many further excavations in the 1950s and 1960s, notably at Alexandria and Deir el-Bahri. Late in his career he headed the committee to rescue the Temple at Abu Simbel from the rising waters of the Aswan dam.

ÉDOUARD NAVILLE

1844–1926

JOB: Egyptologist

COUNTRY: Switzerland

The Swiss Egyptologist Édouard Naville studied with the renowned Egyptologist Karl Lepsius before traveling to Egypt for the first time in 1865. He is known for his work on the myths of Horus. He also discovered the location of the Biblical Pithom, a city supposedly built by the Israelites, and worked at Hatshepsut's mortuary temple.

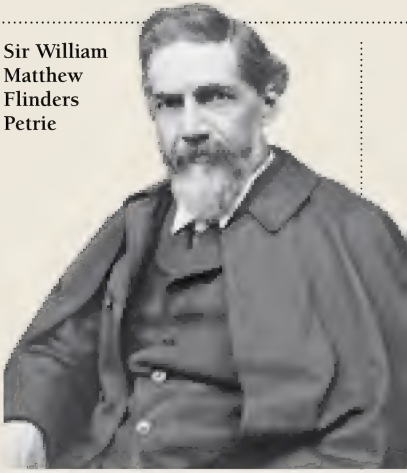
SIR WILLIAM MATTHEW FLINDERS PETRIE

1853–1942

JOB: Archeologist/Egyptologist

COUNTRY: England

Sir William Matthew Flinders Petrie is sometimes called the "Father of Egyptian archeology."



Sir William Matthew Flinders Petrie

He first went to Egypt in 1880 to survey the Great Pyramid at Giza, disproving theories that were popular at the time about why it was built. He began excavating in Egypt in 1884 with the support of the Egypt Exploration Fund. Excavating the pyramid of Senwosret II with Guy Brunton in 1889, he discovered beautiful jewelry that had belonged to the Egyptian princess Sit-Hathor-Iunet. His distinguished archeological career continued for many years, with excavations all over Egypt, as well as in Palestine.

ALEXANDRE PIANKOFF

1897–1966

JOB: Egyptologist

COUNTRY: Russia

Alexandre Piankoff was born in St. Petersburg, where he developed an interest in Egyptology after seeing a collection of Egyptian artifacts in the Hermitage Museum as a child. After an education that was interrupted by World War II, he became a specialist in languages, and he is best known for the work he did on Egyptian religious texts.

GEORGE ANDREW REISNER

1867–1942

JOB: Archeologist/Egyptologist

COUNTRY: US

George Andrew Reisner was born in Indianapolis, Indiana, and studied languages at Harvard University. He excavated in Egypt with funding from the Hearst family and developed systematic ways of recording excavations. He also helped to develop the use of photography in archeology. He directed digs at Giza, where he found the tomb of Hetepheres, mother of Khufu. He also worked in Nubia and Palestine.

George Andrew Reisner

HERBERT RICKE

1901–1976

JOB: Egyptologist/Architect

COUNTRY: Germany

Herbert Ricke was a respected German Egyptologist who specialized in Egyptian architecture. He worked extensively on the pyramid temples, including Khafre's mortuary temple at Giza, helping to interpret the meanings of statues. He also suggested possible interpretations for architectural symbols, such as 24 pillars in a temple representing the hours of the day. He directed excavations at Userkaf's sun temple at Abusir in the 1950s. Ricke also wrote about domestic and religious architecture.

SIEGFRIED SCHOTT

1897–1971

JOB: Egyptologist

COUNTRY: Germany

Siegfried Schott was a renowned German Egyptologist who began his career as an avant-garde artist. He worked on Egyptian religious art, as well as on texts and history. He translated and published several volumes of ancient Egyptian poetry, and did extensive research on the representation of kings in ancient Egyptian art. He also did research on Egyptian festivals and the Egyptian calendar.

SIR JOHN GARDNER WILKINSON

1797–1875

JOB: Writer and Egyptologist

COUNTRY: England

After leaving Oxford without a degree, Sir John Gardner Wilkinson traveled to Italy because of his poor health, where he became interested in antiquities and decided to study ancient Egypt. Wilkinson lived in Egypt for 12 years and carefully studied every known site, taking notes and doing drawings. Bad health forced him to return to England, where he published his work to great renown. He was knighted in 1839.

HERBERT WINLOCK

1884–1950

JOB: Egyptologist

COUNTRY: US

Herbert Winlock's father was assistant secretary at the Smithsonian Institution, and like him, Herbert was also interested in artifacts and antiquities. He played a major part in many of the Egyptian excavations sponsored by American museums during the 1920s and 1930s, spending his entire career in the employment of the Metropolitan Museum of Art. The collections of Egyptian artifacts the museum holds are largely due to his excavations. Winlock is probably best remembered for his painstaking reconstruction of the lineage of the pharaohs of the Middle Kingdom period.

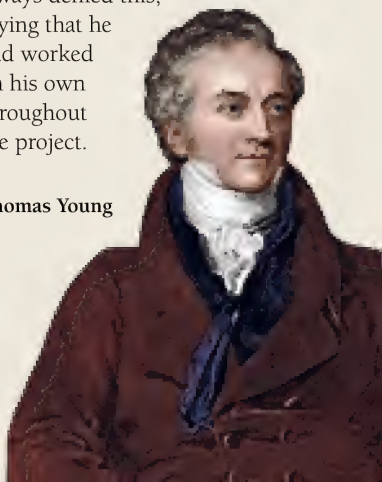
THOMAS YOUNG

1773–1829

JOB: Scientist

COUNTRY: England

Thomas Young was a scientist with interests in a number of disciplines, including physiology, optics, and Egyptology. He worked to decode hieroglyphs at the same time as Jean-François Champollion, making important steps in identifying signs and cartouches. When Champollion evenutally published his correct translation, Young claimed that the Frenchman had used his work. Champollion always denied this, saying that he had worked on his own throughout the project.



Thomas Young

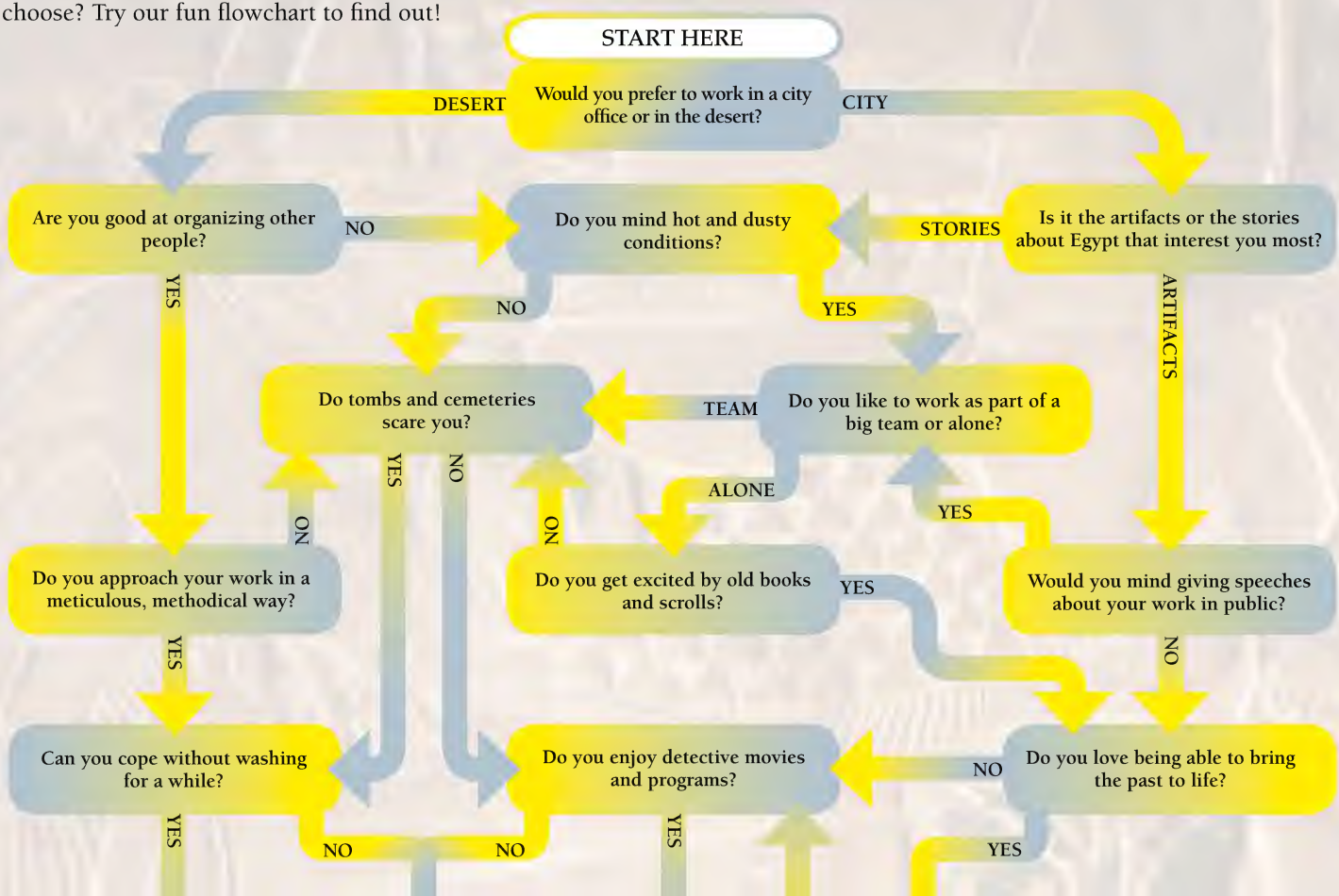
2

ACTIVITIES

Have you got what it takes to be an Egyptologist? Find out how much you know and hone your skills with our challenging activities.

Which expert are you?

Inspired by Mark Lehner's work and the different areas of research into ancient Egypt, you're set on becoming an Egyptologist. But which branch should you choose? Try our fun flowchart to find out!



Are you afraid of the dark?

YES

NO

Do you have a flair for languages?

YES

NO

Do you see cities where others see piles of rubble or sand?

YES

NO

Are you good at cracking secret codes?

NO

Would you enjoy working with excitable children around?

YES

NO

Do you spend hours puzzling over a crossword clue?

NO

Would you mind being alone with a dead body?

YES

NO

YES

ARCHEOLOGIST

You have the patience and stamina needed to spend hours on a site, scraping away layers to reveal the past hidden beneath the dirt.

EPIGRAPHER

You never give up, unpicking clues and spending hours trying to decipher meanings behind works of art rather than just admiring them.

FORENSIC ANTHROPOLOGIST

Your fascination with the past is clearly tied up with people and how they lived and died. You're not put off by bodies or skeletons.

CURATOR

Conserving treasures for future generations and sharing your love of ancient Egypt with others would be a dream job. Who knows, you may even inspire the Egyptologists of the future!

Name it

Artifacts discovered after the fall of ancient Egypt help us to build up an image of the time and how people lived. Label these objects, list their uses, and then circle the odd-one-out.

HOW LONG DID IT TAKE YOU?

- ☐ 10 mins: Expert
- ☐ 15 mins: Knowledgeable
- ☐ 20 mins: Beginner

Seek religious guidance in *Eyewitness Ancient Egypt* for help with the odd-one-out.

1. Object

.....

Use

.....

.....

2. Object

.....

Use

.....

.....

3. Object

.....

Use

.....

Use it

Egyptians thought that some everyday objects had magic or medical powers. Which is the odd-one-out?

According to *Eyewitness Ancient Egypt*, magic numbers 26 and 48 can help you out here.

1. Juniper berries

.....

4. Object

.....

Use

.....

5. Object

.....

Use

.....

6. Object

.....

Use

.....

.....

7. Object

.....

Use

.....

2. Lotus blossom

3. Garlic

4. Bread

HOW LONG DID IT TAKE YOU?

- [ ] 10 mins: Expert
- [ ] 15 mins: Knowledgeable
- [ ] 20 mins: Beginner

Hieroglyphs

The ancient Egyptians developed over 700 hieroglyphs as a system of picture writing. Some symbols stood for sounds, some for whole words. Use this alphabet to create your own messages.

A B C D E F G

(hard "c," as in "cut") (hard "g," as in "get")

H I J K L M N O P Q

(soft "g," as in "gel")

R S T U V W X Y Z

(soft "c," as in "center")

Can you write your name in hieroglyphics?

.....

Now write a short message for a friend to decipher:

.....

HOW HIEROGLYPHICS WORK

In some cases, a hieroglyph symbol represents a whole word. For example, a picture of the Sun actually means the Sun. Many hieroglyphs represent sounds. The Egyptians developed a set of 24 consonant sounds, for example, the hieroglyph of an owl stands for the sound "m." When scribes wrote words, they left out the short vowel sounds and wrote only consonants.

Egyptian royalty

Experts look for cartouches—oval-shaped markings with a vertical line at one end—to identify royal names on ancient Egyptian artifacts. Label these objects then count the total number of cartouches you can see on all three.

Eyewitness Ancient Egypt will help you if you get stuck.

Total:

1..... 2..... 3.....

Crack the code

A scribe could help you out here. Find one in *Eyewitness Ancient Egypt*.

Hieroglyphics were often so complicated that deciphering them was like cracking a code. Can you crack these codes?

Can you translate these hieroglyphs into letters or sounds and work out what they mean?

This is the hieroglyph for the political leader of a country—what is this person's job title?

1.....

2.....

All in a name

The Egyptians worshiped hundreds of gods, many represented by animals. Each one was thought to have specific powers, and their names reflected these. Use your Profile Cards to identify the gods and discover the meanings of their names.

How long did it take you?

- ☐ 10 mins: Expert
- ☐ 15 mins: Knowledgeable
- ☐ 20 mins: Beginner

A. Name

.....

Meaning

.....

B. Name

.....

Meaning

.....

C. Name

.....

Meaning

.....

D. Name

.....

Meaning

.....

E. Name

.....

Meaning

.....

F. Name

.....

Meaning

.....

G. Name

.....

Meaning

.....

I. Name

.....

Meaning

.....

H. Name

.....

Meaning

.....

.....

Deities

Unjumble the letters in the pyramid puzzle and discover the names of four ancient Egyptian gods hidden inside.

Look for the gods in *Eyewitness Ancient Egypt*, but don't expect Amun-Re or Anubis to be of any use.

B

K R

T U M

H S S O

I I T H H

A S T E N T O

1. .....

2. .....

3. .....

4. .....

The deceased

How long did it take you?

- ☐ 10 mins: Expert
- ☐ 15 mins: Knowledgeable
- ☐ 20 mins: Beginner

Egyptians believed that preserving the bodies of the deceased was important for ensuring their survival in the afterlife. Number the stages of preparing a body (from 1 to 6), then label the objects involved in the process.

If you need help, don't "open your mouth," just look at *Eyewitness Ancient Egypt.*

A. What is it?

.....

Use

.....

STAGES IN PREPARING A BODY

- A cut is made in the left side of the body and the liver and lungs are removed. ☐
- The body is bandaged and put in the coffin. ☐
- The brain is removed. ☐
- The body is covered in natron crystals to stop decay. ☐
- The liver and lungs are dried out. ☐
- Embalmers take the body to the Beautiful House. ☐

C. What are they?

.....

Use

.....

B. What is it?

.....

Use

.....

E. What is it?

.....

Use

.....

D. What is it?

.....

Use

.....

.....

Unscramble these letters and reveal the god of embalming:

B I S A U N.....

The Afterlife

LEVEL 3

How long did it take you?

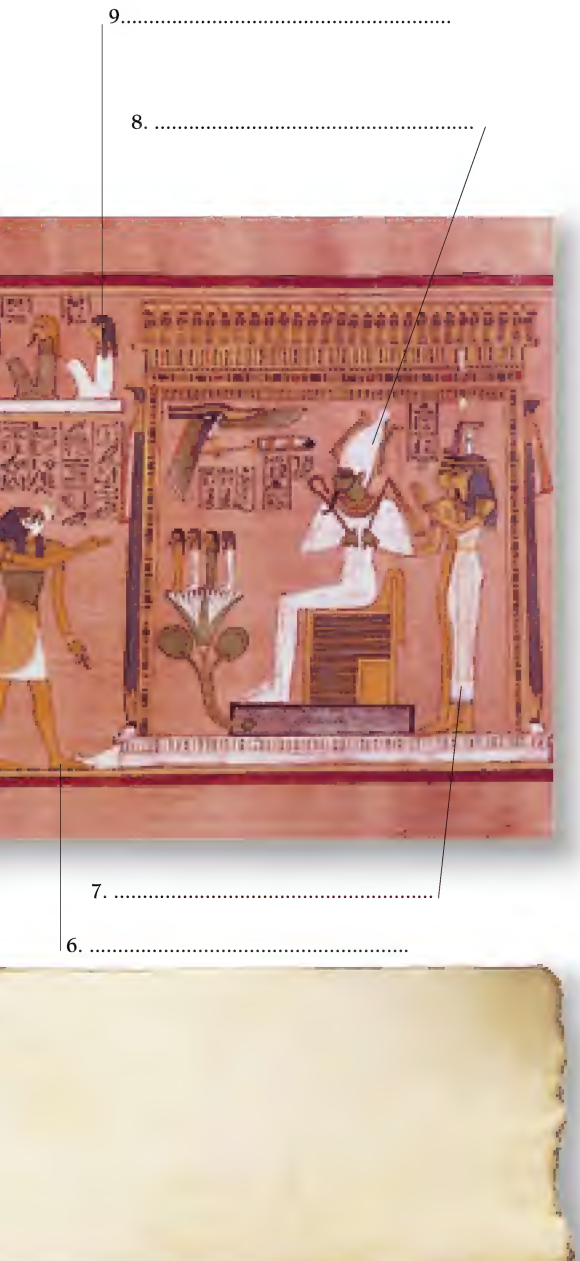
- ☐ 10 mins: Expert
- ☐ 15 mins: Knowledgeable
- ☐ 20 mins: Beginner

The deceased faced many perils as they journeyed to the underworld. The ultimate danger was to fail the test set for them in The Hall of the Two Truths. Write an account of what happened here, as shown in the papyrus, and label the main characters in the ritual.

Look in *Eyewitness Ancient Egypt* and follow your heart to weigh up the answers.

1. .....
2. .....
3. .....
4. .....
5. .....

Write your account here:



Last gifts

Label these objects and explain their purpose. Then check the ones likely to have been of use in the Afterlife.

Check out *Eyewitness Ancient Egypt* for extra help.

1. Object

.....

Use

.....

2. Object

.....

Use

.....

3. Object

.....

Use

.....

4. Object

.....

Use

.....

3

EXPERTS' LOG

It's time to get organized and start your own research. Check out the simple tools that every budding expert needs. Your career in Egyptology starts here!

At the museum

Even if you can't join an archeological expedition to the pyramids you can still explore the mysteries of ancient Egypt by visiting a museum.

TOP TIPS

Tools:
- Pen and notebook
- Camera

• A museum tour can take you on a wonderful journey through the daily life, beliefs, death, and afterlife of the ancient Egyptians by bringing you face to face with dazzling sculpture, mummies, coffins, jewelry, and weapons.

• Probably the world's finest collection is housed in the Egyptian Museum in Cairo. It owns more than 250,000 objects, so it can only display half at a time! However, you can also find exhibitions much more locally. Check the listings in your *Eyewitness Ancient Egypt* page 69, or go online to see what's on.

• Take notes from the information cards which accompany your favorite exhibit. Egyptologists have to be very specific when they document their artifacts, so find out exactly when and where your object was found, how old it is, what kind of people used it, and what they used it for. Use the space on these pages for your notes, or start your own log in a notebook or scrapbook.

• If the museum allows you to take photographs, attach them here—or you can make sketches to help you remember it. You might also like to visit the museum shop and look for posters or postcards of your favorite exhibits and add these to your scrapbook.

In depth

Although you may not be able to go to Egypt, you can bring Egypt to you. Pick a favorite find and add to your expertise without even leaving home!

TOP TIPS

Tools:
- Pen
- Notebook
- Your Expert pack
- Internet / library / television

• After making a discovery, Egyptologists must begin piecing together its history. This can be painstaking work! Choose a site or an artifact that you have read about or seen in a museum, and use the internet, books, and television to investigate it in as much depth as you can. Where was it found, and who by? How old is it? What can it tell you about life in ancient Egypt?

• Use the *Eyewitness Ancient Egypt* map in your Expert pack to mark the location of the discovery you are investigating.

• If the discovery is connected to a particular pharaoh or god, check whether he or she is included in your profile cards. If not, make a new card to add to your collection.

• They may be stories, but look for films set in Egypt such as *The Mummy* or the Lara Croft movies. Watching them may help you get a taste of what life was like in Egypt during the reign of the pharaohs, or what it's like to be an archeologist. With your growing expertise, you'll also have fun spotting what's based on fact and what's pure fiction!

• See page 44 for more research tips.

Research

Excavation is ongoing so Egyptologists must keep up to date with new developments in the field. Research is also an important part of your study.

TOP TIPS

Books
Visit your local library or bookshop where you can choose from encyclopaedias or more specific titles which concentrate on mummies or pyramids to find the answers to all your questions about ancient Egypt.

The Media
Watch out for reports of new discoveries. Record the details of each find, such as the date and location it was unearthed. You may like to start a separate file of newspaper clippings to your logbook, or attach them here.

The web
There are many websites devoted to the land of the pharaohs—some of the best sites are listed on page 69 of your *Eyewitness Ancient Egypt*. So get online and join a virtual dig, learn how to write hieroglyphs, or read about archeologist Mark Lehner's latest research projects and finds.

Museums
Go online or check your local newspaper to find out where the nearest exhibition is being held. If you can't get there in person, they may have a website where you can take a virtual tour instead!

Scrapbook

Use this space to attach your photographs and postcards or to make sketches of artifacts you have seen. See if you can draw the Sphinx, a mummy, or even copy a scene from an ancient Egyptian painting.

4

PACK MANUAL

Read on for how to get the most out of your interactive expert pack—including step-by-step instructions for making Tutankhamun's spectacular burial casket.

Expert reads

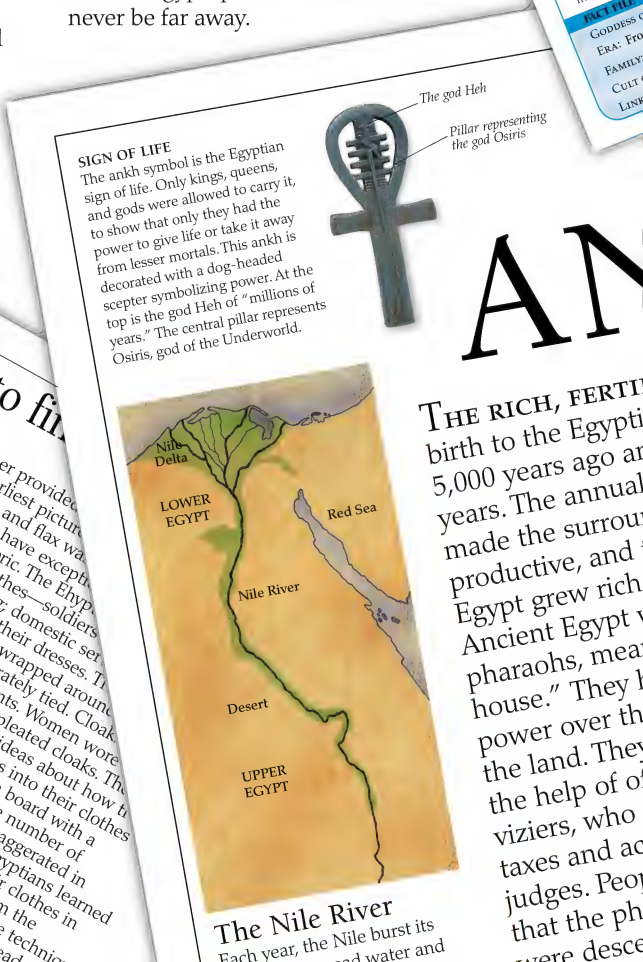
Everything you need to know about getting the most from your interactive expert pack is right here! Written by the experts of today for the experts of tomorrow, these reads will speed you on your journey to uncovering the mysteries of ancient Egypt. Read on!

Eyewitness Guide

Your first port of call for all things Egyptian, this museum on a page is where you can be an eyewitness to the everyday life of an ancient civilization. Written by experts and illustrated with photographs of incredible artifacts, from top collections, *Eyewitness Ancient Egypt* is an essential read for every budding expert.

Wallchart

Who was Tutankhamun? Why were people and animals mummified? Put this chart on your wall at home or at school and the answers to your ancient Egypt questions will never be far away.



Profile cards

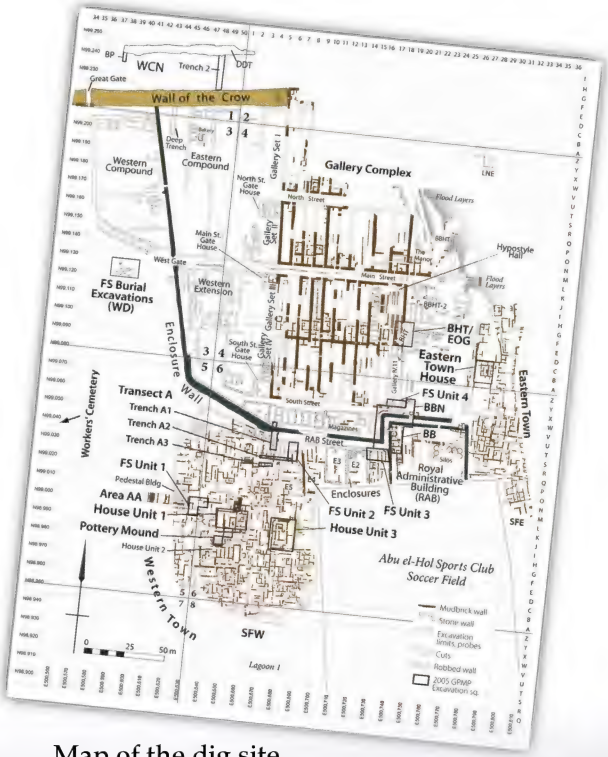
Pull out these handy pocket-size cards and mug up on the essential facts that every expert should know. Use them to test your friends' knowledge, too, or make some of your own to add to your collection!

Mapping the past

By plotting the location of tombs, temples, monuments, houses, and other structures, Egyptologists keep records for future generations of archeologists. Their maps reveal the extent of the building achievements of the ancient Egyptians.

Map of a lost city

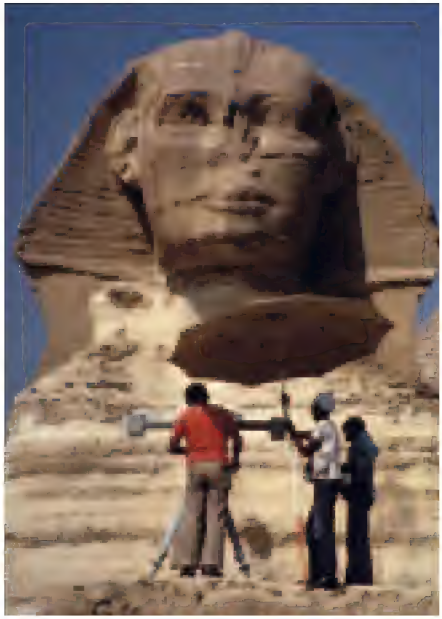
While exposing the old walls of the Lost City of the Pyramid Builders on the Giza Plateau, Mark Lehner and his team made precise measurements of the layout of the town, to give a clearer idea of what the once-thriving neighborhood must have been like. The blueprint (drawn plan) helped archeologists to see a highly planned city divided into blocks, with broad, straight streets, including "main street"—one of the oldest paved streets in the world. There were elite villas in the east and west, with more basic and crowded communal accommodation in the center.



Map of the dig site

The land of the pharaohs

Unfold your Eyewitness map and get ready to embark on a journey of discovery. Notice why the Nile River was so important—the lifeblood that flows through the towns of a country that is 90 percent desert. Its presence brought water for farmers and made possible the transport of goods as well as building materials for those splendid monuments.



Mapping the Sphinx

Mark Lehner's team created the first accurate and detailed scale maps of the Sphinx, noting its precise size and location, the materials it is made from, each different restoration (rebuilding work) performed over the years, and which other of the monuments were built in the same period. They also found that the Sphinx's alignment with the other Khafre monuments suggested a form of Sun worship.

Multimedia

Handing in school projects has never been so exciting! Packed with 100 specialized images and facts about ancient Egypt, this clip-art CD will make your homework look so professional you'll be dying to show it off. Go to www.ew.dk.com for more interactive, downloadable information.

Clip-art CD

Lapis lazuli

Mummified cat

Sculptures at Karnak

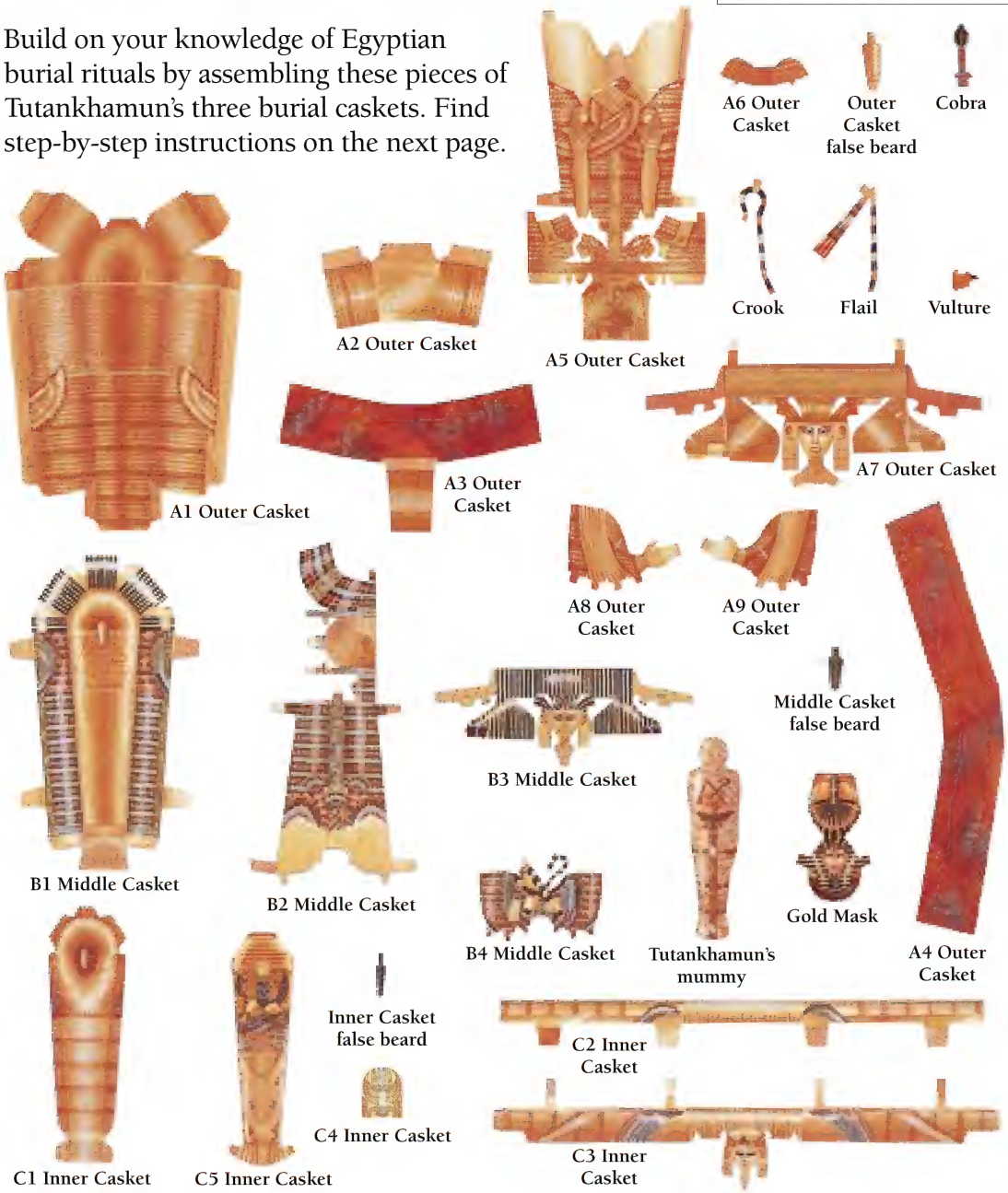
For instant pictures open up your clip-art CD, follow the "how to use" instructions, and you'll find ancient Egypt at your fingertips!

Famous sites

Casket model

Before assembling the model, press out the pieces and fold the card along the score lines. Tabs indicate where pieces should be glued together.

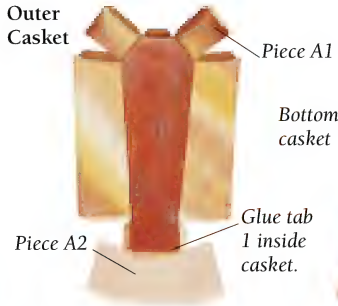
Build on your knowledge of Egyptian burial rituals by assembling these pieces of Tutankhamun's three burial caskets. Find step-by-step instructions on the next page.



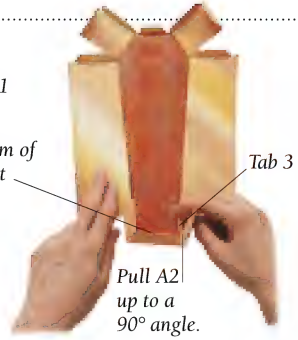
HELPFUL HINTS

To make this model you will need some clear, strong craft glue. This will allow you to position each piece accurately and form firm joins. Make sure you glue the pieces to the correct glue points.

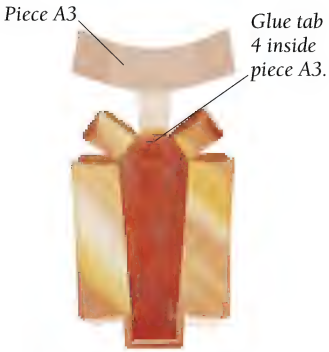
Gluing tabs
Place a small amount of glue onto the tab. Wait for one minute, or until the glue is tacky. Press the tab carefully to its glue point and hold until dry.



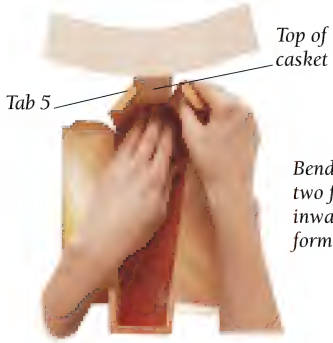
1 Hold pieces A1 and A2 with the insides facing you and glue tab 1 in place.



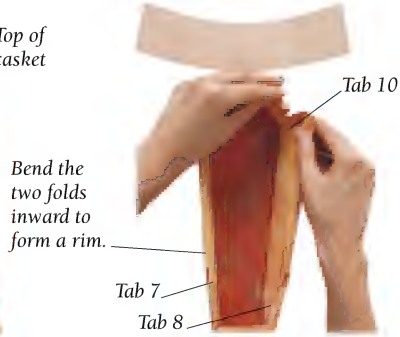
2 Bend all the folds toward you. Glue tabs 2 and 3 in place to form the bottom of the casket.



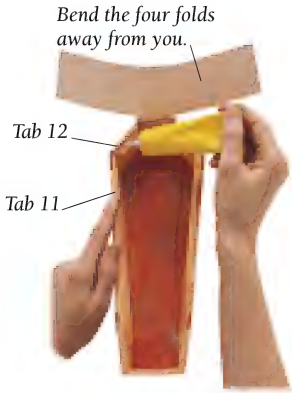
3 Take piece A3 and, holding it with the inside facing you, glue tab 4 in place at the top of the casket.



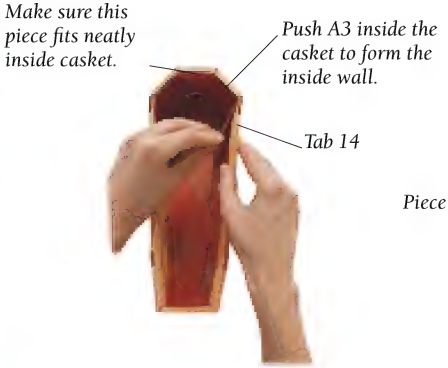
4 Glue tabs 5 and 6 in place to form the top of the casket.



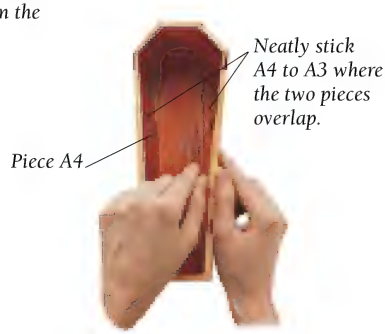
5 Glue tabs 7, 8, 9, and 10 in place to form the casket shape. Then bend the folds around the top of the casket inward to form a rim.



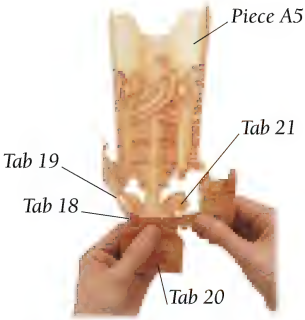
6 Bend the four folds on piece A3 away from you. Then place glue on tabs 11, 12, 13, and 14.



7 Fold piece A3 inside the casket and stick it onto the four tabs.

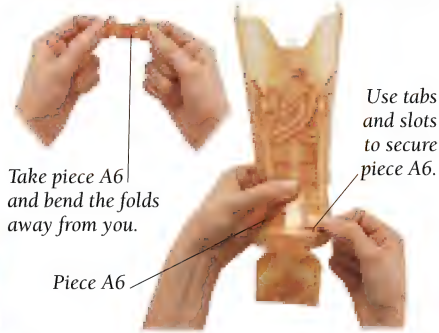


8 Take piece A4 and, holding it with the inside facing you, bend the folds away from you. Stick it to tabs 15, 15a, 16, 16a, and 17.

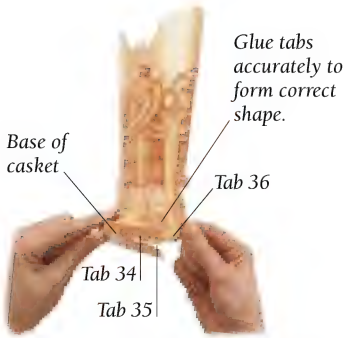


9 Hold piece A5 with the outside facing you and bend all the folds away from you. Glue tabs 18, 19, 20, and 21 in place.

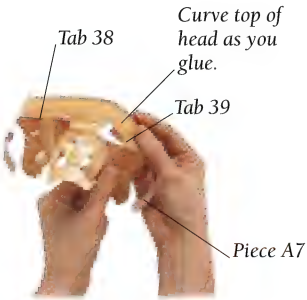
10 Glue tabs 22, 23, 24, and 25 on the left-hand side, and 26, 27, 28, and 29 on the right-hand side, in place.



11 Take piece A6 and, with the outside facing you, push it into place, as shown above. Use the tabs and slots on A5 to secure the piece.

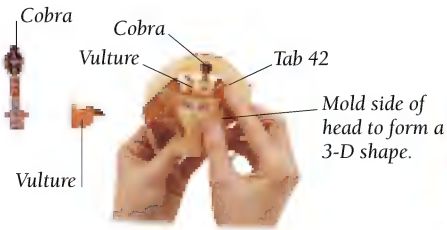


12 Glue tabs 30, 31, 32, and 33 on the left-hand side, and tabs 34, 35, 36, and 37 on the right-hand side, in place. The body is now complete.



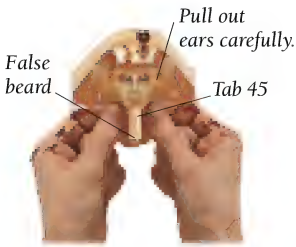
13 Take piece A7 and, with the outside facing you, bend all the folds away from you. Glue tabs 38 and 39 in place.

14 Glue tab 40 underneath the face.

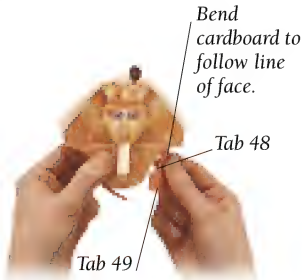


15 Push the cobra and the vulture through the two slots at the top of the head. Glue their tabs down. Pull the face toward you and glue tabs 41 and 42 in place.

16 Glue tab 43 to make the face three-dimensional.

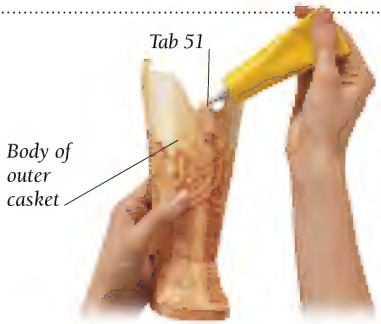


17 Push the false beard through the slot in the chin and glue its tab down. Then push tabs 44 and 45 through the slots and glue them down.

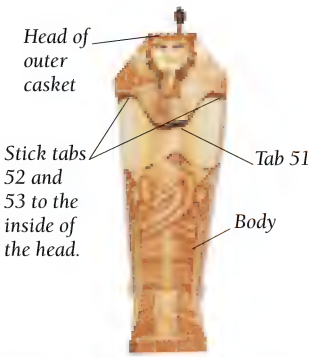


18 Glue tabs 46 and 47 on the left side, and tabs 48 and 49 on the right side, in place.

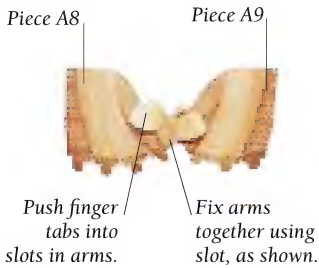
19 Glue tab 50 in place. The head of the outer casket is now complete.



20 To join the head to the body, take the body and place glue on tab 51.



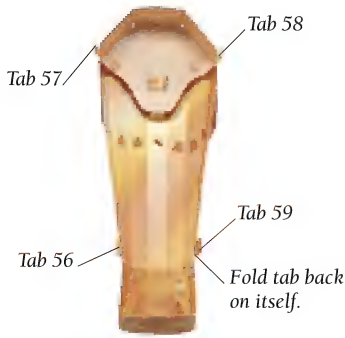
21 Take the head and stick it to tab 51. Push tabs 52 and 53 on the body through the slots on each side of the head, and glue down.



22 Take A8 and A9, and holding them with the outside facing you, bend the folds away from you. Slot them together.

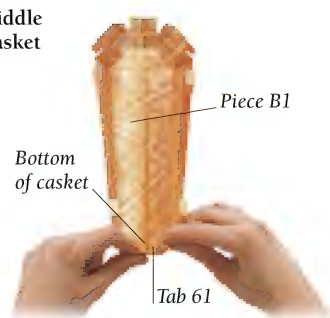
23 Push the seven small tabs through the slots on the body. Glue tab 54 on the left-hand side, and tab 55 on the right-hand side, in place.

24 Slide the crook and the flail through the hands, as shown above.

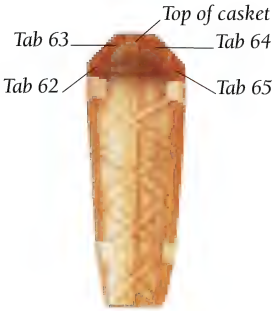


25 Turn the piece over, fold tabs 56, 57, 58, and 59 inward, and glue them down. The lid of the outer casket is now complete.

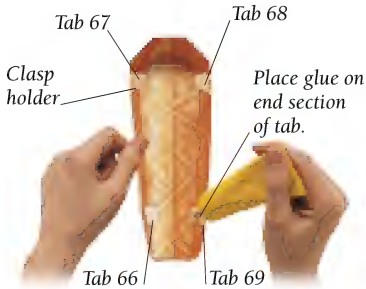
Middle Casket



26 Take piece B1 and, with the inside facing you, bend the folds toward you. Glue tabs 60 and 61 in place to form the bottom of the casket.

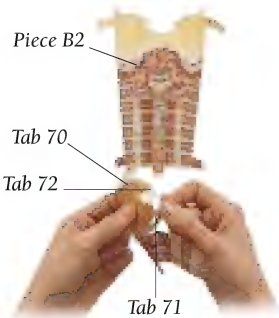


27 Glue tabs 62, 63, 64, and 65 together to form the top of the casket.

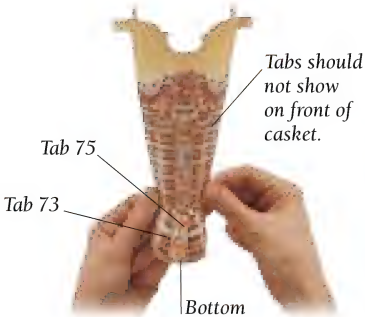


28 To form the four clasp holders, bend the three folds on each holder inward, and place glue on tabs 66, 67, 68, and 69.

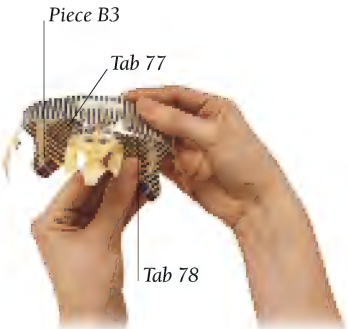
29 Glue the tabs to the inside of the casket so that the slot on each of the clasp holders faces upward. The base of the middle casket is now complete.



30 Take piece B2 and, with the outside facing you, bend all the folds away from you. Glue tabs 70, 71, and 72 in place.



31 Glue tabs 73, 74, 75, and 76. The body of the middle casket is now complete.

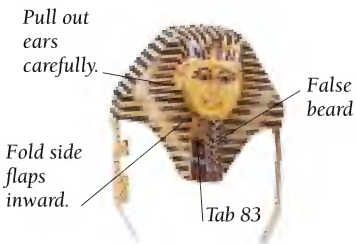


32 Take piece B3 and, with the outside facing you, bend all the folds away from you. Glue tabs 77 and 78 in place.

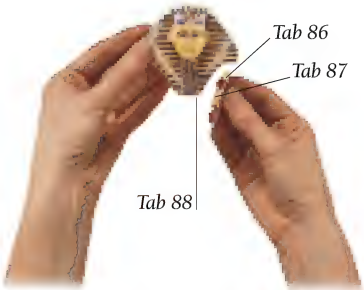
33 Glue tab 79 underneath the face.

34 Pull the face toward you and glue down tabs 80 and 81.

35 Glue tab 82 to form a 3-D face.

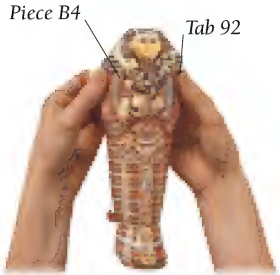


36 Push the false beard into the slot under the chin and glue it down inside the face. Then glue tab 83 down.



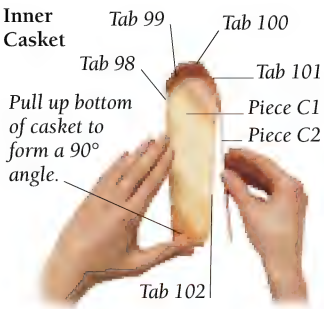
37 Glue tabs 84 and 85 on the left-hand side and tabs 86 and 87 on the right-hand side, in place. Then glue tab 88. The head of the middle casket is now complete.

38 Take the body of the middle casket and slot tabs 89 and 90 into the slots on either side of the head and glue them down inside.

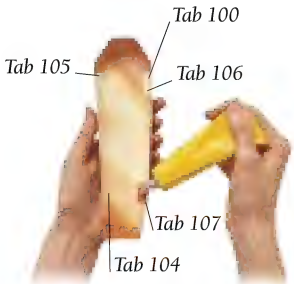


39 Hold piece B4 with the outside facing you and bend the folds away from you. Insert the six small tabs into the slots on the body. Glue tabs 91 and 92 in place.

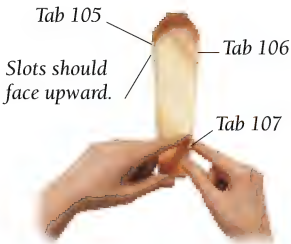
40 To form the clasps, turn the piece over, fold tabs 93, 94, 95, and 96 inward and glue them down. The lid of the middle casket is now complete.



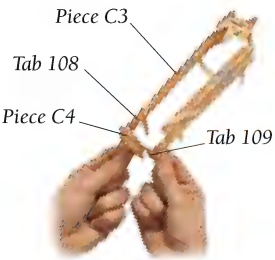
41 Take pieces C1 and C2 and, holding them with the insides facing you, bend the folds toward you. Glue tabs 97, 98, 99, 100, 101, 102, and 103 on C1 in place on C2.



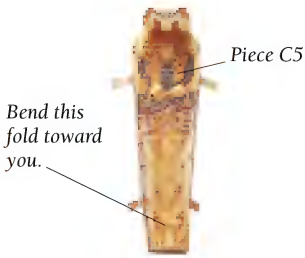
42 Bend the three folds on each clasp holder inward, and place glue on tabs 104, 105, 106, and 107.



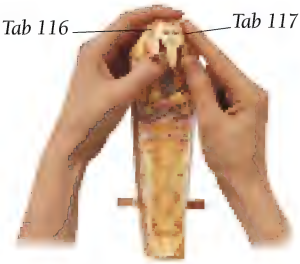
43 Glue the tabs to the inside of the casket. The base of the inner casket is complete.



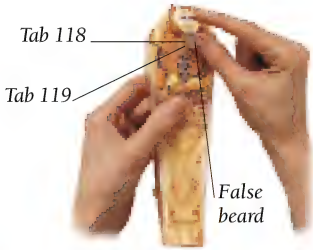
44 Hold piece C3 with the outside facing you and bend all the folds away from you. Glue tabs 108 and 109 in position on piece C4.



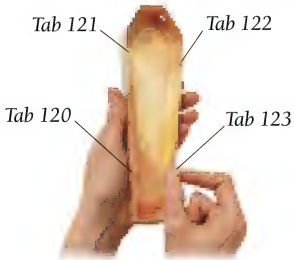
45 Take piece C5 and glue it onto tabs 110, 111, 112, and 113. Glue tabs 114 and 115 to form the feet.



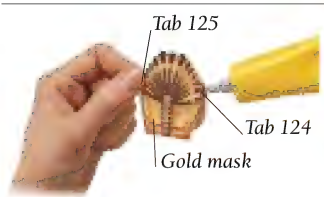
46 Pull the head forward and glue down tabs 116 and 117.



47 Insert the false beard into the slot on the face and glue it down. Glue tab 118 to form a three-dimensional head. Insert tab 119 into the slot and glue it inside the head.



48 Turn the piece over and place glue on tabs 120, 121, 122, and 123. Fold them inward and glue down. The lid of the outer casket is now complete.



49 Take the gold mask and, with the outside facing you, fold tabs 124 and 125 away from you. Glue the mask together as shown. Place on mummy.

50 Take the mummy and place it inside the inner casket. Then insert the clasps on the inner casket lid into the clasp holders on the inner casket base.

51 Place the inner casket into the middle casket. Insert the clasps on the middle casket lid into the clasp holders on the middle casket base.

52 Place the middle casket into the outer casket. Insert the clasps on the outer casket lid into the clasp holders on the outer casket base.

Tutankhamun's Caskets

Once you have made your model, why not use it as a starting point for some research into Tutankhamun? Start by looking in *Eyewitness Ancient Egypt* and using your profile cards.

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Activity answers

Pages 28–29 Name it
1. Puzzled pussycat, mummified cat trinket sold to temple visitors to take to temple and dedicate to goddess Bastet.
2. Sacred bucket, used in ceremonies involving the sprinkling of water.
3. Royal vase, decorative container for pharaohs to take into the next life with them.
4. Fish flask, designed to hold perfume.
5. Wooden palette, used by scribes for carrying ink and writing materials.
6. The game of snake, one of the earliest board games in ancient Egypt.
7. Incense burner, used in a mosque to burn incense. This is the odd-one-out because it is not an ancient Egyptian artifact. It is Islamic.

Use it
Lotus blossom is the odd-one-out. Bread, garlic, and juniper berries are all things that Egyptians would have eaten.

Pages 30–31 Egyptian royalty
1. 1; 2. 3; 3. 1. Total: 5

Crack the code
1. Egypt; 2. Prime Minister

Pages 32–33 All in a name
A. Sekhmet, "One who is powerful."
B. Bes, "Protector, in the Nubian language."
C. Seth, "He who dazzles."
D. Khonsu, "The Wanderer."
E. Meretseger, "She who loves silence."
F. Wadjet, "Papyrus colored" and "Human eye."
G. Tawaret, "The great one."
H. Isis, "Queen of the throne."
I. Atum, "He who created himself."

Deities
1. Thoth; 2. Khnum; 3. Bastet; 4. Osiris.

Pages 34–35 The deceased
1. Embalmers take the body to the Beautiful House.
2. A cut is made in the left side of the body and the liver and lungs are removed.
3. The liver and lungs are dried out.
4. The brain is removed.
5. The body is covered in natron crystals to stop decay.
6. The body is bandaged and put in the coffin.

A. Wax plate—used to cover cuts made in the flesh of the corpse.
B. Natron—a mix of sodium carbonate and sodium bicarbonate crystals used to dry out dead bodies.
C. Canopic jars—the inner organs of the deceased were kept in these jars.
D. Mummy case—the body was wrapped in linen to stop it from decaying and placed in a case like this.
E. Utensils for "Opening the mouth"—this kit was used in a ritual to restore a person's living faculties. It was thought that it would help mummies to eat, drink, and move around.

Anubis was the god responsible for embalming.

Pages 36–37 The Afterlife
1. Dead man; 2. Anubis; 3. Anubis; 4. Devourer of the Dead; 5. Thoth; 6. Horus; 7. Nephthys and Isis; 8. Osiris; 9. Some of the 42 assessor gods.

See p18–19 *Eyewitness Ancient Egypt* for account.

Last gifts
1. Model Servants, Shabti figures—in the afterlife these figures would protect scribes and priestesses from doing manual work. It was thought that these shabtis would do the work in place of the dead. Likely to be of use in the afterlife.

2. Knot Amulet—These magical charms were worn while a person was alive, and were also placed on corpses to give protection in the next life. Likely to be of use in the afterlife.

3. Scarab—This scarab was placed over the heart of a king to help him through the scrutiny of his past life. Likely to be of use in the afterlife.

4. Grinder—for crushing pigment. Not likely to have been of use in the afterlife.

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